N.A.C.A. BULLETIN

In Two Sections

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EDITORIAL DEPARTMENT NOTE

The first article in this issue of the *Bulletin* revives an issue which has had some discussion in past N. A. C. A. literature. The *Bulletin* of January 15, 1936 contained an article by Jonathan N. Harris of Boston advocating the elimination of fixed costs from inventories under what had been described as the "direct cost plan." This was followed by forum letter discussion of Mr. Harris's proposal in subsequent issues of the *Bulletin*, a discussion of that proposal at the 1936 Convention by Professor Howard E. Cooper of Johns Hopkins, and an article in the July, 1937 *Bulletin* by Clem N. Kohl of Denver supporting the position of Mr. Harris. In the intervening years there have been several published references to the direct cost plan in N. A. C. A. and other American accounting literature, and a similar proposal was published in the British *Cost Accountant*.

PHILIP KRAMER, author of this article, is a member of the Research Staff of the Harvard Graduate School of Business Administration. A graduate of City College of New York and Harvard University, Mr. Kramer has had both public and private accounting experience and served with the Navy Department Cost Inspection Service during the war.

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A combined production and profit-sharing bonus plan which has yielded rather unusual results in a small business is described in the second article in this issue. While the plan as here described may not be generally applicable in detail, the theory upon which it was developed does have general application and will be of interest to all readers.

R. L. GUNNELL, the author of this article, is Assistant Secretary and Treasurer of Rapids Standard Co., Inc., manufacturers of industrial casters and conveyors, of Grand Rapids, Mich. Mr. Gunnell, who is currently serving as Director of Program of the Grand Rapids Chapter, has had charge of the accounting and cost accounting departments of his company for the past seven years.

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To see ourselves as others see us may not always be satisfying, but is almost certain to be interesting. The third article in this issue of the *Bulletin* supplements previous articles dealing with the accountant's part in management and the executive's attitude toward accounting and accountants.

OLIVER E. MOUNT, author of the article, is Vice President and Secretary-Treasurer of American Steel Foundries of Chicago. He served as President of the Steel Founders' Society of America from 1942 to 1945 and as President of the Illinois Manufacturers' Cost Association from 1935 to 1937. He has served as a chairman, vice chairman and member of numerous industry, tax, and legislative committees and has been active in Association work.

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SELLING OVERHEAD TO INVENTORY

by PHILIP KRAMER,
Research Staff, Graduate School of Business Administration, Harvard University, Boston, Mass.

IN RECENT years increasing attention has been given to the dichotomous classification of manufacturing overhead expenses into those costs which are a function of time and those which are susceptible of correlation with production volume. Some expense items have been termed semivariable or partially variable, but it has become increasingly evident that such costs may be further subdivided into linear functions variable with time or output. It has also become customary to refer to time costs as fixed expenses and to output costs as variable expenses.

Have we accountants not stopped short of the goal in our analysis of why expenses or costs vary in this manner? We have been content to say that direct materials are quantitatively measurable in each unit of product manufactured, but factory supervision is not so directly measurable and is allocable to the unit of product only on arbitrary bases for conversion of elapsed time into "normal output" expectations. Would it not be preferable to recognize that the variable expenses incurred during this accounting period are the result of management's current decisions to produce and sell specific items of product in specific quantities in specific markets? Would it not also be desirable to recognize that the fixed expenses are allocations to this accounting period of costs incurred either currently or in the past as a result of management's past decisions (although subject to continuing review) to maintain the potential to produce and sell a range of product items in varying quantities in varying markets? So conceived, the fixed expenses are the continuing costs of standing ready to produce and the variable expenses are the current costs of producing now.

Overhead in Inventories

This concept is fundamental to the understanding of why it is feasible to omit the fixed costs of manufacturing overhead from process and finished goods inventory valuation without departing from the generally accepted premise of cost as the primary valuation base. If this concept is accepted, fixed expenses are not costs of the product but are rather costs of the period. It may be noted

in passing that the author has not been able to find an authoritative definition of manufacturing cost or a statement of what shall be included in manufacturing cost. The tentative statement on inventories by the Research Department of the American Institute of Accountants (*Journal of Accountancy*, October, 1940) said in part:

> "In practice wide variations occur in the definition of manufacturing costs upon which inventories of work in process and finished goods are stated. It is neither possible nor desirable to eliminate all these variations, but undoubtedly they cause much misunderstanding. Probably the most common departure from general principle is the omission of certain *proper* [italics supplied] elements of cost for the purpose of stating inventories conservatively. . .
>
> "The statement of manufactured goods at the cost of materials and labor only, with the omission of all overhead, is an undue measure of conservatism and cannot be approved. . . .
>
> "Taxes arising from or connected with production, and depreciation on plant devoted to production, are proper elements of manufacturing overhead to be charged to inventories. . . ."

Instances will be discussed subsequently wherein manufacturing enterprises do not construe "the omission of all overhead to be an undue measure of conservatism" and wherein depreciation on plant devoted to production is not charged to inventories. It is obviously true that these instances are exceptions to the generally prevailing practice, but they are not exceptions occasioned by special circumstances and they may well be the trail blazers of new paths.

Effect of Fixed Costs on Income Determination

It is not the purpose of this article to consider the many variations on the theme resulting from the omission of continuing costs of manufacturing operations in arriving at incremental cost and pricing decisions, in equipment replacement problems, in choice of product and price alternatives, and the like. Suffice it to say, these areas are well adapted to the "contribution to fixed costs" type of approach. Attention is focused on the way reported income is affected through the inclusion of fixed manufacturing expenses in inventory valuation.

The mathematics of the situation are quite apparent. If a relatively fixed dollar amount of expense is allocated to units of product, and more units of product, and consequently more fixed expense, are retained in closing inventory than were in opening inventory, manifestly more fixed expense is carried forward to the subsequent period through the medium of final inventory than was charged into the current period in opening inventory. The effect on income is that of not charging the current period with the full amount of fixed manufacturing expenses assessable to the period and consequently overstating income. Conversely, if the closing inventory is smaller than the opening inventory, the income of the current period is understated.

Factors in Income Distortion

The amount of distortion of income is contingent upon two factors; the degree of inventory change during the period, and the proportion of total product cost represented by fixed manufacturing costs. The larger the unit fixed costs and the wider the inventory variation, the greater will be the over- or understatement of income determined under conventional cost accounting procedures. Similarly, the effect on working capital reported in the balance sheet will be conditioned by the operation of these two factors in establishing inventory valuation.

This is an old principle and one recognized (with respect to "establishment charges") in the oldest cost accounting textbook (1889) to come to the attention of the author, as follows:

> "The course adopted by most of the best manufacturing firms is to value the stores at the net cost or invoicing price, and the manufactured articles on hand at their cost of production, without any addition for profit, or for standing charges as distinguished from factory charges. The practice of including in the valuation of stock a percentage for establishment expenses or standing charges is one which cannot be too strongly condemned, if on no other ground than that a business which is really the reverse of profitable might, by the simple device of manufacturing and accumulating a large stock, be made to appear for a time as at any rate self-supporting. That is to say, a business might be made to appear flourishing, while as a matter of fact it was becoming less solvent, by reason of its cash and other available assets being converted into manufactured stock which may

never be realizable, and by the standing charges (if these are included), which in the absence of bona fide business transactions would represent losses, being made to figure in the balance sheet as good assets in the shape of stock on hand. The right principle undoubtedly is that in a manufacturing business a profit should not be considered to have been made until a sale has been effected, or until a contract for the delivery at a future date of goods already manufactured is entered into."*

Growth of Fixed Charges

The extent of fixed manufacturing charges is presented in Exhibit 1. It is to be noted that as our business structure becomes less flexible, more costs tend to change from variable to fixed rather than vice versa. A good example in point is direct labor which for a long time was considered as directly variable with productive activity and is now tending to assume fixed components with the rigidities imposed by management decisions to give two weeks' paid vacations, seven holidays a year, and guaranteed annual minimum wages. Most important, however, is management's realization of its social obligations to the community, of the human factor in labor relations which precludes the abrupt layoff of employees, and of the higher costs involved in laying off, rehiring, and retraining as against the costs of temporary nonproductivity of labor.

It should also be noted that management decisions being currently made in this postwar reconversion period with respect to the acquisition of additional war-born facilities and diversification of product lines and markets served is indeed burdening future years with continuing fixed costs. Will it be equitable in farther removed and perhaps less prosperous postwar years to saddle the products of those periods with the costs of decisions made in these optimistic days?

The importance of inventory variation between accounting periods is not as readily susceptible to tabulation as are fixed charge percentages. Manifestly, this factor will assume greater magnitude when a given business is on an upward or downward trend than when its operations are reasonably stabilized. Attention should be given, however, to the fact that management oft-

* Factory Accounts, Garcke and Fells, Crosby, Lockwood & Son, London, 1889 (3rd ed.).

RELATION OF FIXED MANUFACTURING CHARGES TO TOTAL MANUFACTURING COST

Group		*Fixed charges percent of total manufacturing cost*	
1	Products in which material cost is the predominating factor.	Company A	7.04%
		Company B	10.36%
		Company C	10.46%
2	Textiles.	Company D	13.05%
		Company E	18.47%
3	Products the manufacture of which involves a large amount of skilled labor.	Company F	26.80%
		Company G	27.43%
		Company H	31.79%
4	Extractive industries—lumber, salt manufacturing, etc.	Company I	38.19%
		Company J	40.56%
		Company K	43.94%
Average of all companies.			24.37%

SOURCE: "Why Most Profit Statements Are Wrong," one of a series of articles in a compliation entitled "New Wine in Old Bottles," by G. Charter Harrison, Fellow of the Institute of Management, 1937, Chrysler Building, New York.

EXHIBIT 1

times makes decisions based on monthly or quarterly income statements and the seasonal variation of inventory quantities in such interim statements may well distort the operating results. It is a curious anomaly that our prevailing accounting practices permit of a smaller profit showing for this month than for last month, despite the fact that current sales exceeded the sales of the prior month, because we sold less overhead to inventory during this period. Are statements prepared on such a tenuous basis useful information for managerial action?

Advantages of Omitting Fixed Overhead

The chief advantage of the omission of fixed overhead expenses from inventory pricing is, in the author's opinion, the segregation of the effect on costs of management's long-range policy decisions from current operating decisions. With such separation, it is pos-

sible to present more useful information to management—particularly, as mentioned previously, in connection with interim income statements. It is important to note also that the regular valuation of inventories on a variable or out-of-pocket basis provides readily available data to facilitate choice of product and pricing alternatives. It is true that management and sales personnel must be trained to recognize that the margin above variable costs is not comparable to the conventional gross profit figure, but once this hurdle is cleared, the effect of increasing volume or increasing prices (and decreasing volume or prices) on profit possibilities becomes much more readily apparent. The author recognizes that variable costs are the short-run resistance point below which prices may not (except under special circumstances) be lowered and that long-run considerations require in addition the realization of fixed costs of manufacture as well as of distribution, general and administration costs, and profit margins. Nevertheless, it appears desirable that even long-run decisions be considered from the viewpoint of what maximum contribution to the pool of fixed charges may be realized from shifting the price-volume factors within the total family of products. We no longer presume that the built-up unit product cost is the major determinant in establishing selling price.

The fact that the omission of overhead costs would result in a more useful income statement has been mentioned above—more useful in the sense of highlighting the continuing costs of this fiscal period and presenting a more reliable income figure. Akin to this point is the ancillary consideration that it will no longer be necessary to haggle about what constitutes "normal capacity" for burden absorption. Gone too will be the annual redetermination of normal burden allocations. We shall have remaining for product costing purposes only those costs directly assessable to and arising from the production of the unit of product. Certainly it is simpler to compute these costs, whatever be the accounting system in use, than to work through arbitrary prorations also. It is further in point that the allocations are effected only for purposes of product costing and determination of cost of sales. Such allocations are not useful for expense control at the source and their elimination should not prejudice the use of effective cost control procedures.

It may also be expected that the effort and cost of cost accounting routines will be decreased with the elimination of burden dis-

tributions and the simplification of inventory pricing at the close of fiscal periods.

Conservative Inventory Values

Finally, the elimination of fixed overhead costs results in a more tangible and more conservative inventory valuation. The valuation is more tangible because period costs whose incurrence may not be subject to current control are omitted and because inventory is not used as the medium for deferring more cost to the subsequent period than may rightfully be said to have been incurred specifically in producing that inventory. The valuation is more conservative because it includes an additional buffer against the drop of net recoverable cost (as generally measured by market price) below the investment cost in inventory. It is true that the working capital shown on the balance sheet is less by virtue of the smaller dollar inventory figure; but it is also true that if fixed manufacturing expenses are properly period costs, there is no more justification for capitalizing such costs in inventory value than there is for inclusion of selling, administrative, general research and development costs, and the like.

One further thought is somewhat afield from that of good accounting principles and enters into the area of business morals. That is, it is perfectly conceivable that the volume of production may be increased or decreased during an accounting period for the primary purpose of increasing or decreasing reported income. Perhaps this manipulation may be negated through auditing standards of consistency, if it may be considered within the scope of the auditor's judgment to pass on the justifiableness of inventory increases and decreases. Nevertheless, if we can improve our accounting principles and at the same time close the door to possible violations of business morals, it would appear desirable to make that improvement.

Compatability with Present Practices

The author has seen raised two major kinds of accounting objections to the omission of fixed overhead costs from inventory valuation. One objection stresses that fixed costs are directly related to normal production volume and are attributable to production. The second objection suggests that this method of cost accounting may make us lazy and cause charges of item after

item to overhead without going through the trouble of establishing reasonable distributions between products.

The second objection does not seem to have much justification. Cost accounting is purposive—the methods and procedures should be determined by the uses to which the data will be put. If there is no valid managerial use for distribution of continuing charges among products—and such distribution may even provide misleading managerial information—why go through the trouble of making these complicated calculations? Moreover, it may well be that such distribution will be required occasionally for special reports; for example, if governmental agencies should require a full allocation of all manufacturing costs among products. When such needs arise, and there is a purpose for the information, then it will be a relatively simple matter to collect all such costs and distribute them among products by procedures which are less complex than those presently in use and which will give sufficiently accurate results for the objectives in mind.

Functional Expense Analysis

As a matter of fact, the methods suggested herein may well require more intrinsic analysis of basic expense functions than is presently being performed. The author has consciously avoided discussion of what is a variable expense and what is a fixed expense. At this point, however, it may be well to point out that such differentiation is not a simple matter of saying that direct material, direct labor, direct supplies, et al. are variable, and supervision, rent, taxes, depreciation, et al. are fixed. If we only reach this elementary basis of differentiation in income determination, it will be an improvement over present practices. Nonetheless, if we carry the analysis through to a logical fruition, it will require rearrangement of cost accumulations by operating functions rather than natural expense classifications, selection of proper yardsticks for measuring expense performance, scatter chart presentation of expense history and fitting of proper trend lines, breakdown of expense items into fixed and variable components, and continuous follow-up on these breakdowns to check on changes in operating conditions affecting expense performance. Far from making the accountants lazy, a good job in the expense analysis area will make the accountant more conscious of his responsibilities for providing useful cost information.

Fixed Charges and Normal Volume

The other objection maintains that fixed expenses are manufacturing costs attributable to production, or at least normal production volume. Are not the exponents of normal capacity in effect saying that fixed expenses consist of two segments—a product cost component and a period cost component? To the extent that the actual operating level is less than the normal capacity, idle plant costs, or underabsorbed burden, arise which are charged off during the current period. This is an open admission that the extent to which current manufacturing performance (a current decision of management) differs from long-range normal expectations (a past decision of management) causes a period charge. Accordingly, the principle of omission is not in dispute, but the degree of omission is. This objection thus appears to resolve itself into the assertion that the degree of omission is "excessive" if all fixed costs are eliminated. However, there are instances of the application of presently acceptable inventory valuation methods which have resulted in far more drastic inventory reductions.

The author recently made a study of the last-in first-out method applied to work-in-process inventories of a cotton textile mill. This method was instituted on January 1, 1941, without any write-down of inventory values at that time. The material costs were thereafter carried on a conventional last-in first-out basis and labor costs were stabilized for inventory pricing purposes at the rates in effect on January 1, 1941. Five years later, at December 31, 1945, the inventory values looked like this:

	Last-In First-Out (per published report)	*First-In First-Out (company statistical records)*	*Difference*	*Percent*
Materials	$163,687.26	$254,177.18	$ 90,489.92	55.28%
Labor and overhead	257,881.19	306,180.71	48,299.52	18.73
Work-in-process 12/31/45	$421,568.45	$560,357.89	$138,789.44	32.92%

It is also to be noted that there were 30,030 fewer "bale pounds" of cotton in work-in-process inventory at December 31, 1945, than were in inventory at December 31, 1940.

Another instance in point is that of a petroleum refining company using the same method. The controller commented that the company's present-day inventory value per gallon was almost

exactly the same price as it was in 1933. He further indicated that while it was not an inherent part of the company's inventory plan to omit overhead costs from the valuation of inventory, the last-in first-out method had almost the same effect, inasmuch as the pre-war inventory values were not far out of line with the present-day variable costs.

Two other investigations made by the author disclosed cases—one a chemical manufacturing company and the other a metal products producer—wherein product cost standards under the standard cost system in use had been frozen as of 1937 and 1938 respectively. Inventories of process and finished goods are today being priced at such stabilized standards.

Undoubtedly many other examples will occur to the readers of similar practices, acceptable under our present-day accounting procedures. These result in more drastic understatements of the manufacturing cost of inventory than would result from the omission of fixed manufacturing costs. This being true, the author is not disposed to concur in objections which point out that omission of continuing costs results in unwarranted understatement of inventories.

Use of Burden Reserves

It may be appropriate at this point to make brief mention of some other suggested approaches to the problem. The first general type of approach involves the use of a burden reserve and/or long-range averages of salable capacity. One manufacturer of electrical equipment computes the so-called normal unit overhead on the basis of an average of five years' operations. This average is recomputed each year in terms of the two years just completed and a forecast for the succeeding three years. Any amount of "underabsorbed" or "overabsorbed" overhead expense resulting from the divergence of actual cost or actual production from the predetermined average is deferred in the balance sheet, with the expectation that it will be offset by a contrary overabsorption or underabsorption some time in the future. This method is based on the premise that the five-year running average will bring about a close correlation between sales and productive activity and so minimize the distorting effects of inventory variation on reported income. Another manufacturer in the same industry computed its standard overhead quotient on the basis of average actually-salable capacity, as determined from a four-year sales forecast

that was made in 1936. It was anticipated that the quotient so computed would be altered in the future only in response to a change in the product mix inherent in the standard, modification of manufacturing proccesses, routings, or layouts, or to a marked change in the proportion of available capacity that might be considered salable. Any unfavorable volume variances were charged off currently to profit and loss; any favorable volume variances were credited to a reserve account to be held as an offset against subsequent unfavorable items. It should be noted that the manufacturing line executives in this latter company were opposed to salable capacity as a measure of standard costing volume.

Another suggestion somewhat akin proposes the accumulation of all continuing manufacturing overhead costs in a reserve account. This account would be credited with predetermined amounts per unit shipped and would make for absorption of such costs at the time of shipment rather than at the time of manufacture.

Adjustment of Inventories

The second general type of approach suggests the continuation of the conventional method of inventory valuation with the addition to the income statement of reconciling information to eliminate the effect on profits of so-called incomplete or inventory transactions.* That is, sales bring about realized income but inventory investments do not; accordingly, the income reported should be adjusted to the extent that fixed costs are sold to inventory.

Both the preceding approaches aim at the same objective as does the variable cost method, but only serve to introduce additional complications. Underabsorbed and overabsorbed burden are a sufficiently complex concept for the businessman to understand without further camouflaging it with concepts of salable capacity, running averages, and the like. Similarly, the reconciliation approach, although a compromise method which might more readily win acceptance by governmental agencies, auditing bodies, and businessmen who do not like to see book asset values vanish as a result of accounting sleight of hand, introduces another technical procedure to income statements which are already sufficiently confusing to the casual reader. If the end objective—the elimination of the effect on reported income of the capitalization in inventory of fixed manufacturing expenses—is desirable, it also

*Cf. "Streamlining Your Overhead," by Harry E. Howell, N.A.C.A. Yearbook, 1940.

appears desirable to attain that objective by the simplest possible method.

Case Histories

As a basis for determining the extent to which full manufacturing cost is used in valuing process and finished stock, inquiry was directed to several company officials. They were asked to state the extent of departure, the reasons for departure, and the results obtained or expected to be obtained. Generally speaking, variations are of three orders: omission of all overhead costs from inventory pricings; omission of fixed overhead costs; and omission of certain items of overhead cost. One special situation arose wherein the company omitted all labor and overhead charges and valued process and finished inventories at material cost only. With the thought that these cases may be of interest, some are considered briefly below.

Company A, a manufacturer of cable, valued inventory at material cost. The company's finished goods inventory never amounted to over eight per cent of raw material inventory. An attempt was made to schedule production so as to ship what was made daily, thereby minimizing the finished goods inventory. An executive of the company commented: "If our inventory accumulated over a long period of time, we would probably consider adding some cost to the raw material cost. And then again, we are endeavoring to be conservative and price at the lowest immediate tangible value."

Company B, a manufacturer of steel products, comments in its published reports that " . . . other inventories (i.e., other than raw materials and supplies) are valued at estimated costs which exclude certain overhead costs and are not in excess of market prices." An officer of the company stated: "The method which we use for estimating costs of our inventory has been in use since 1917. We eliminate items of overhead so that our inventory values show bare manufacturing costs, and as we have followed this method for so many years we do not believe this method has had any effect on our income over a long period of years. We adopted this method so as to show our inventories at a conservative value." It should be noted that, although the effect on income over a long period of years may result in a statistical average closely approximating the results to be attained from the cconventional basis of inventory pricing, nevertheless the short-run income reportings

COMPANY C

Estimated Effect of Depreciation on Reported Profits
(000 omitted)

	1945	1944	1943	1942	1941
Depreciation (including amortization of DPC facilities).....	$4,604	$4,295	$4,201	$3,842	$2,758
Estimated depreciation allocable to:					
Finished goods and work-in-process inventories of January 1	325	394	466	353	341
Finished goods and work-in-process inventories of December 31	371	325	394	466	353
Estimated effect on reported profits if depreciation was included in inventory valuation:					
Reported profits would be greater by	46			113	12
Reported profits would be less by..		69	72		

EXHIBIT 2

will be affected by the operation of the factors previously considered.

Company C, producing textiles, plastics, and chemicals, states in its published reports that "Inventories in the balance sheet and entering into the cost of goods sold are computed at average unit costs, and do not include any charge for depreciation of fixed assets." The published data have supplied a rough estimate showing the effect on reported income of the omission of depreciation charge. (Exhibit 2). It is to be noted that the magnitude of the effect is cushioned by the relative constancy of inventories from year to year during the war period.

Company D, manufacturing women's dresses, comments on its inventories which were priced at the lower of cost or market as follows: "Costs as to work in process and manufactured stock include material and labor only, without manufacturing or other overhead."

Company E, a producer of men's clothing, annotates its published statements thus: ". . . and, in accordance with the established policy of the company, in-process and finished garments are priced at material and labor costs only, with allowance for slow moving garments."

Company F, manufacturing chemicals and chemical products, prices work in process and finished goods inventories at variable costs only. The primary objective of the company is to eliminate the seasonal distortions of reported income resulting from the inclusion of fixed costs in inventories and accordingly to provide

management with more useful information. Another major objective is facilitation of the determination of breakeven points by product lines. The philosophy and procedures of the company have been very well described by Mr. Jonathan N. Harris in the N. A. C. A. *Bulletin* of January 15, 1936 and the *Journal of Accountancy* of July 1946.

The annual report of Company G, for 1939 contained the following comment as a footnote to the income statement:

> It has been the consistent policy not to include overhead expenses in computing costs for inventory purposes. If an allowance for manufacturing expenses had been included in the amount for inventories at December 31, 1938, and December 31, 1939, the net profit for the year would have increased approximately $30,000.

The same comment, except for a change in dates and amounts, appeared in all the subsequent annual reports of the company.

The systems manual of the company stated:

> The company's inventory of hosiery, finished and in process, will be priced on the basis of standard material and direct labor cost which is consistent with the company's long-standing policy of inventory valuation. . . .
>
> Since overhead is not included in the inventory valuation, the standard cost of overhead as shown by the standard cost summary will be charged to the account "absorbed overhead." Credits to absorbed overhead account will represent the standard overhead cost of shipments and will be computed from the record of shipments, the charge being to "cost of goods sold at standard." . . .

The absorbed overhead account was, in effect, an inventory valuation account showing the amount of overhead applicable to the net change in inventory during the period. That is to say, continuously throughout the accounting period the inventory account was charged with the standard cost of materials and direct labor for the quantity of actual production for the period and the absorbed overhead account was charged with the standard cost of overhead for this same quantity of production. The inventory account was credited with the standard cost of materials and direct labor for the quantity of goods shipped during the period

and the absorbed overhead account was credited with the standard cost of overhead for the quantity shipped, the total charge going to cost of goods sold at standard. The balance in the absorbed overhead account was accordingly the amount of overhead applicable to the net change in inventory during the period. At the close of each period this balance was written off to operations below the standard gross profit line. It might be noted in passing that it is not necessary to have a standard cost system to operate under this or similar procedures. Company G priced inventories on the same basis from 1928 through 1938 under an actual cost system prior to the installation of standard costs.

A credit balance occurred in the absorbed overhead account whenever shipments during the period exceeded production for the period. Thus the income reported for the period was increased by the amount of this credit in excess of the amount of income which would have been reported had overhead been included in inventory valuation. Conversely, a debit balance in the absorbed overhead account represented an excess of production over shipments with a concomitant decrease in reported profits as a result of the inventory increase in relation to the profits which would have been reported had overhead been included in inventory valuation.

Exhibit 3 shows the effect of this method of handling overhead on reported semiannual profits. The adjusted profit figures reflect the inclusion of overhead in inventory pricing. The adjustments for the years 1939 through 1946 were taken from the absorbed overhead account previously described and ranged in magnitude from $63,000 minus to $113,000 plus in relation to reported profits before taxes ranging from $277,000 to $1,300,000.

It should be noted that the movement of adjusted profits will not necessarily conform with the direction of change in dollar value of inventory, assuming a relative constancy of overhead to total product cost in both opening and closing inventory. For example, at December 31, 1944, dollar value of inventory increased about 10 per cent. It might be expected that adjusted profits would be higher than reported profits, although Exhibit 3 shows this expectation not to be true. The reason is a simple one—the physical units in inventory actually declined some 17 per cent from the preceding period although the dollar value of inventory increased. Accordingly, it is necessary to take into account both the dollar and quantity variations in inventory in order to gauge prop-

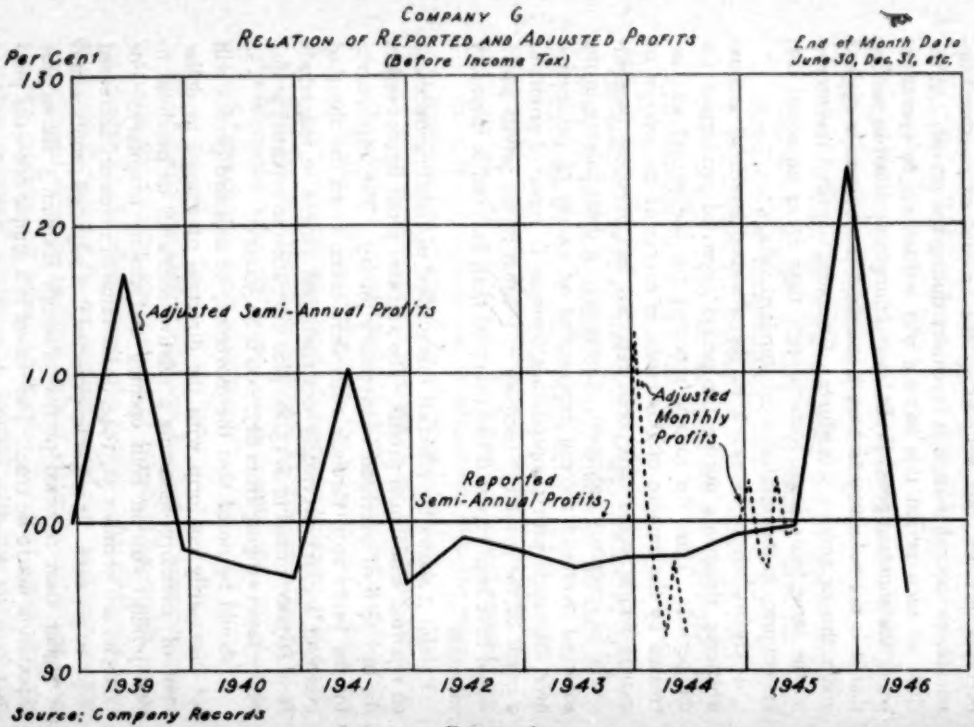
COMPANY G
RELATION OF REPORTED AND ADJUSTED PROFITS
(Before Income Tax)
End of Month Date
June 30, Dec. 31, etc.
Per Cent
130
120
110
100
90
Adjusted Semi-Annual Profits
Adjusted Monthly Profits
Reported Semi-Annual Profits
1939
1940
1941
1942
1943
1944
1945
1946
Source: Company Records

EXHIBIT 3.

erly the effect of overhead capitalization on income determination.

It should further be noted that although profits statistically average out over a long-run period of years, the variation between adjusted and reported profits is nevertheless significant because management takes action on the basis of current reports rather than on any long-run average of profits. This consideration becomes even more pronounced when the variations over shorter periods, as shown in Exhibit 3, are examined.

The management of Company G is well satisfied with the results of the method of inventory valuation in use and attributes the following advantages to the system: conservative inventory valuation with the result that at no time in the company's history was it necessary to write down inventory as a result of market price declines; simplification of inventory pricing at the year end; and elimination of income distortions through omission of continuing overhead costs from inventory valuation. The company's practice is sanctioned by the Bureau of Internal Revenue and has not been questioned by the Securities and Exchange Commission or the New York Stock Exchange.

Conclusion

An endeavor has been made here to examine the merits of the omission of fixed manufacturing overhead costs from inventory valuation on three grounds: (1) the theoretical basis that such charges are properly period rather than product costs, (2) the purposive basis that such an omission results in more useful information for management, and (3) the practical basis that such or similar procedures are currently in use and are giving satisfactory results. As each accountant considers the possibility of application of this procedure to the individual activities of his enterprise, many more advantages and disadvantages specific to the particular situation may well come to light. It does seem, however, that the time is at hand to consider this proposition, to weigh the evidence, and to decide whether the long cherished accounting concept of full manufacturing cost requires revision.

EXHIBIT 3.

Source: Company Records

GROUP BONUS PLAN RAISES PRODUCTION, WAGES, AND PROFITS

by R. L. GUNNELL, Assistant Secretary and Treasurer,
Rapids Standard Co., Inc.,
Grand Rapids, Mich.

OUR company was organized in July 1939, with a total of nine members including office personnel. Manufacturing space and capital were very limited. At the beginning management wanted to pay high wages but was financially unable. For the first two years progress was steady, and all available surplus was used to purchase new equipment. Wages increased and so did living costs. But overhead rates and, what is more important, labor cost per item remained constant or increased on all of our products. In early 1942 matters came to a head as a result of fair demands from the members for higher wages. There was only one possible way that we could pay more, and that was through increased production per direct labor dollar, because profits definitely could not stand increased labor costs. These facts were presented to the shop committee, and, when asked if they could produce more, they replied, "We can if it is worth while." The bonus plan then grew out of this meeting with the shop committee. The final bonus plan was a combination of a production-direct labor bonus and profit sharing bonus.

Formula Used

The mathematical work involved in this plan is very simple. All necessary figures are copied directly from our monthly profit and loss statement that covers our entire operations. These figures are then applied to the percentages in the plan. The figures shown in the illustration following are purely hypothetical and in no way resemble the bonus percentages we pay nor the percentages we use in figuring the allowance for direct labor or for profit sharing. The method of computation illustrated is actually the one in use.

We use a percentage of our total net sales for the current month as a direct labor allowance. This percentage was taken in 1942 from the previous two years' experience. From this allowance we subtract actual direct labor for the current month, excluding the previous month's bonus payment and all indirect labor. The difference is the production-direct labor bonus. (Never once has

direct labor exceeded the allowance.) We then use a percentage on our net profits before federal income tax and arrive at the profit sharing or profit bonus which is combined with the production bonus, and the result is the total bonus to be distributed. The bonus is divided among all the members on the basis of their wages or salaries for the month, not including the previous month's bonus. All members participate in this distribution from office boy to shop supervisors with the exception of salesmen and officers of the company. The amount of bonus to be distributed is divided by the total wages and salaries subject to bonus, and this percentage is then multiplied by the individual's earnings, the result being his bonus for the month.

Example:

Sales		$100,000
Direct labor		15,000
Net profit before taxes		10,000
Wages and salaries subject to bonus		25,000
Sales × direct labor allowance percentage		
$100,000 × 20%	=	$ 20,000
Actual direct labor	=	15,000
Production or direct labor bonus	=	$ 5,000
Profit-sharing bonus:		
Net profit × profit-sharing percentage		
$10,000 × 25%	=	2,500
Total bonus to be distributed	=	$ 7,500
Wages and salaries subject to bonus	=	$ 25,000
Bonus percentage		30%

Payment of Bonus

The bonus is, of course, paid in the month following the one in which it was earned. Generally payment is made about the twentieth, being combined with the weekly shop payroll to save labor and postings. The salaried members are paid their base wages semimonthly, and receive their bonus at the same time as the shop. This necessitates some additional payroll work, but helps the salaried members to the extent that they get three pay checks per month which somewhat counteracts that long interval between

checks. The pay check including bonus is specially prepared, showing the individual member's total hours worked the previous month, his total wages for the month including bonus, and the hourly rate of wages he received (a prime requisite in keeping the member conscious of his combined base and bonus hourly rate). The bonus percentage is posted on bulletin boards throughout the plant several days ahead of payment, together with a few words of praise when a new goal is reached. The attainment of a new high in the bonus percentage is always accompanied by shouts and whistling, and is a real morale booster to the members.

History of Bonus Payments and Percentages

The first bonus payment was made in August 1942, based on the month of July. In October the government salary and wage freeze was responsible for keeping the percentage constant for the subsequent ten months. We later obtained permission to continue our regular method of computation. During the period that the bonus percentage remained constant, production leveled off, and we showed a slight gain in operations. The first month that the freeze was lifted in 1943, the bonus percentage more than doubled the frozen percentage, production and profits on operations gaining in like manner. The bonus percentage has grown larger each year since that time. The average bonus percentage for 1944 was 76 per cent higher than 1943. In 1945 the average bonus percentage was 24 per cent above 1944, and 125 per cent greater than the 1943 average. January 1946 was 9 per cent above January 1945. Steel strikes, coal strikes, and strikes by our suppliers so far this year have cut into the bonus percentage, and undoubtedly will in the future; but it is still giving the members the incentive to produce. Suppliers' strikes and increased material costs notwithstanding, the bonus percentage undoubtedly will rise to a new all-time high in 1946.

Benefits to Members

From the time the plan was started up to the present, the interest aroused in the members by the bonus plan has given them a new and better outlook on their daily work. The men took the plan in the right spirit and the spirit was catching. They not only concern themselves with the manner in which their own work is turned out, but they also take an active part in turning in new ideas and methods that result in higher bonuses. Our members now take

pride in their respective jobs because they are a member of the organization just the same as the president of the company.

Benefits to Company

The plan is simple to operate. Compiling the bonus percentage is easy. The clerical labor in preparing the bonus payments requires but twelve hours' extra work once a month. Compare this, if possible—a point subject to argument for a good many reasons —with the labor spent on various incentive plans based on piece work.

Production per labor hour has increased during the years 1940 up to now. Very few price increases have been made, due at first to competition and later to OPA. Our price ceilings were just recently removed, but management advises definitely that no price increases are to be made. Therefore, our figures for dollar volume sales have remained on the same basis since 1940. The direct labor percentage of net sales dropped 4 per cent from 1940 to 1943 and dropped 12 per cent from 1940 to 1945. We have been fortunate in that we made our regular product all through the war, but still our net profit before federal income tax increased 79 per cent from 1940 to 1943 and 137 per cent from 1940 to 1945. A good share of this is due to the expansion in sales with corresponding reduction in overhead. But we are still operating in cramped quarters and production per square foot of space is many times what it was back in 1940, due mainly to one thing—increased productivity per member. It was this never-ending flow of increasing production that enabled us to sell and ship more each year. One outstanding virtue of the plan is the minimizing of the burden of strikes, slow downs, and general discontent that has so persistently occupied the time and minds of management of many companies, when they should have been working on production. The high esteem in which the company and its plan are held by the members has in turn given a large amount of personal satisfaction to the top management responsible for the existence of our organization and bonus plan. There are many benefits from the plan; it has been a means of keeping our 280 members pulling together, enjoying the privileges and pleasures resulting from good work and good pay, and to the company it has meant successful operations.

MANAGEMENT AND THE ACCOUNTANT

by OLIVER E. MOUNT, Vice President and Secretary-Treasurer,
American Steel Foundries
Chicago, Ill.

EFFECTIVE accounting controls for management must be based first, last, and all the time on an accurate, intelligent, and comprehensive system of accounting. An accounting system should accomplish three main purposes:

1. Record all transactions of the business and provide an up-to-date picture of its financial condition.
2. Provide a means for the control of costs.
3. Show clearly and correctly the results from operations.

The prime requisite in the conduct of any business is good management. Stated broadly, management is to a business organization what the main spring and balance wheel are to a watch. Management is the planning, coordinating, actuating, and controlling force in an organization. It synchronizes human relationships. It is by far the most vitalizing factor in our present industrial age.

How does management carry out its functions? By defining and dividing the activities or functions of a business into well-defined categories, and by placing such activities or functions under executives who are delegated authority commensurate with responsibility for getting results. The main functions are, of course, familiar to us all. They include sales, operations, finance, and accounting. The phases of accounting which should interest us can be summarized under four headings: financial, historical, analytical, and protective. All four phases exist for one common purpose: to aid management. The execution of any one of them is adjudged to be good, bad, or indifferent, depending upon how well the common aim is accomplished. These phases, of course, are not mutually exclusive, as will appear from the remaining discussion. In view of their common mission, all four of them more or less stand or fall together. But, at the same time, each phase has a sufficiently identifiable scope to warrant separate discussion.

Financial Accounting

The first or financial phase embraces what is perhaps the oldest function of accounting, the furnishing of information on the fi-

nancial status of a business. Is the business solvent? Can it meet maturing obligations? What types of assets does the business own, and how much of the total investment do they represent? What are the sources of the company's funds, and how important is each source? To what extent is the company operating on borrowed money requiring repayment in the near or long term, and to what extent on equity funds sunk permanently in the business? Questions such as these are answered by the balance sheet. Today management is furnished with a balance sheet as often as once a month. The form and content of the balance sheet have perhaps seen the greatest development of any basic accounting statement. The future improvement of the balance sheet must necessarily lie in supplementing, rather than supplanting, the familiar form. Two possibilities readily come to mind. One is the degree to which the balance sheet can be amplified by the further development of supporting statements emphasizing this or that particular element in financial status. Another is the revealing, in appropriate form, of trends of particular elements over a number of periods.

Historical Accounting

The second or historical phase of accounting embraces the furnishing of information with regard to profits. Rightly or wrongly, the securing of profits is the admitted impetus under which all business is carried on, and information on the profits of a period is accordingly of paramount interest to management. The plural expression, profits, may to the unwary appear to be an innocent optional term, but I am sure that it suggests a deeper connotation to you. It is well known that the accountants of a concern can cast up as many different versions of a profit for a period as there are purposes for which the answer is to be used. Thus, you are familiar with "profits for income tax purposes," "profits in accordance with generally accepted practice," "profits available for dividends," "profits for purposes of rate-making," "profits for purposes of price determination," and so forth. The concept of profit of a period is therefore no easy thing to comprehend on the part of anyone, including management, not entirely familiar, either through study or experience, with the many strange and even conflicting methods underlying modern accounting procedure. Management must make out what it can from such divergent bases for casting up profits of a given period, relying upon full explanation for reaching intelligent and sound judgments concerning them. In

fairness to accountants employed by progressive concerns, it should be said that income statements prepared by them in the form and content transmitted to management today do give very satisfactory over-all information as to what income was earned and what costs were incurred, leaving a profit or loss for the period. But it is natural to ask, especially for management, whether a job done well cannot be done better. In your own business, do you supplement the usual income statement with illuminating analyses of sales, of factory costs, of taxes, or of any other significant items? And finally, do you furnish statements which bring out the more important operating trends which the business is experiencing over several periods?

Analytical Accounting

The third or analytical phase, embodying perhaps the most important contribution which the present generation of accountants has made to business, is the development of cost accounting and budgetary procedure, sometimes combined into the broader term of internal accounting. The subject features two magic words, "analysis" and "control," and entails a mass of technical details. Analysis and control are, of course, neither original nor exclusive ideas of this new function. Analysis, as we all recognize, is essentially the searching for relationships, and control implies the possession of enough knowledge to steer the business ship properly. Both of these ideas have long represented the sum and substance of the books of account and of the statements and supporting schedules prepared from them for the use of management. Cost accounting, budgetary procedure, and related functions are not just "more accounting." The new work has demonstrated itself to be too valuable to be dubbed merely as emphasizing and intensifying analytical procedures known all along. It is still a young field, but its attainments are already substantial, and far-reaching prospects lie immediately ahead.

Standards, Systems, and Forecasts

The particular value of this new aid to management is keynoted in three words: standardizing, systematizing, and prophesying. Because physical facts and standards are finally registered in financial terms, the accountant plays a vital role in establishing standards of performance. Standard costs of manufacturing a product are set up and kept up to date by the joint efforts of engineers and ac-

countants. Cost systems point up the financial savings which result, or fail to result, from introducing a new plant layout, the purchase of a newly invented machine, the revision of a particular process, the adoption of a new piece rate compensation to workers, or putting greater safeguards against wastage of materials. Thus accountants work hand in hand in the unrelenting task of cost reduction by standardization and systematization. Prophesying involves planning, for the short term with as much certainty as possible, and for the longer term as far ahead as possible. Here we think of modern budgetary procedure. The activity is appropriately centered in the accountant who is best qualified to compile it, to devise controls for compliance with it, and to explain permitted variances from it. Management's interest in improved budgetary methods must be obvious to all, for planning has always been considered its key responsibility.

Thus the things embodied in the analytical phase involve a vast and growing range of services offered to management. In this connection, the everyday terminology includes actual costs, unit costs, production center costs, average costs, comparative costs, standard costs, differential costs, and unproductive costs. The terms also refer to the tripartite relationship between costs, prices, and profits at assumed levels of production. The intelligence assembled from this wide array of facts is presented in tabulations, in narrative form, or in charts and graphs. The magnitude of analysis is matched with minuteness of analysis. The justification for such breadth and depth lies in the responsibility placed upon those entrusted with the work, which is, to put it briefly, the reporting of anticipated results to management before management is confronted with actual results as accomplished, irrevocable facts.

Protective Accounting

The protective, or fourth phase is, in some respects, the least colorful of any of those discussed. Yet it is as indispensable as any work performed by an accountant for a business. The problem here is to protect the assets, the income, and the outgo of a business from its natural enemies, namely, error and fraud. The method is to throw as many safeguards around the susceptible areas as are practically possible. No concern wants to lose the money it has or fail to receive the money it has coming to it. No concern will knowingly tolerate theft of money or materials. And no concern permits, if it can help it, the payment of excessive

prices for purchases made, or payment for unauthorized purchases, or for unearned wages. There are several ways of throwing safeguards against such happenings. The first which may be mentioned is fidelity bond coverage. The second safeguard is obtained from a properly maintained recording system for billing, collecting, ordering, receiving, and paying.

Internal Auditing

The protective service of accounting to management is further illustrated by internal auditing. This service involves a systematic, continuous verification of established accounting procedures and records. Within its scope, it is superior to independent auditing performed by outside auditors because it is more timely, more intimate, more extensive, more preventative than curative, and more economical. Internal auditing is one of the more recent control mechanisms aiding management. More is expected to be heard from such fresh interest in a long-standing managerial need.

We are all familiar with the protective service performed by independent auditors. The main features of this work lie in its "independence." Unlike all of the other accounting services, this one has very little, if any, of the characteristics of employer-employee relationships. The independent auditors are free to decide, within the broad terms of the engagement contract, what to audit, i.e., the points to be covered; how to audit, or the methods to be used; and how much to audit, or the degree of verification by sampling and testing. The work of independent auditors has undergone the same evolutionary change true of any responsible group of men, and the future is bound to see further change in the direction of greater usefulness of their talents in matters for which they profess competence. In its efforts at credit seeking, investment seeking, or seeking compliance with some governmental regulation, management has found and will continue to find the work of independent auditors to be of great value.

Accountant's Obligation to Management

The major problems that will confront management in the immediate future are as follows:

1. Management, dollar- and centswise, must learn better to control itself. There must be greater personal interest in, and a more intimate understanding of, costs of business operations. This is the means of understanding both the

internal economics of the individual enterprise as a competitor in its own industry, and also the economics of the industry in competition with other industries.

2. Management must learn how to reproduce itself, both for the continuing good of the enterprise with which it is entrusted and to avoid the deadening influence of disintegration within the industrial structure.
3. Management must play fair with those who contribute to the life of the business, by apportionment of a just share of the fruits of the enterprise for the worker, the owner, and management and its aides according to equitable recognition of the relative contributions to the enterprise.

I believe, therefore, that in carrying out our obligations we have to consider many new requirements. Several of these are listed below. Though this list is not complete, the points are extremely important.

1. Facts
2. Speed
3. Trends
4. Costing product lines
5. Standards
6. Breakeven points
7. Exceptions
8. Annual reports
9. Cost of keeping costs

Facts

Facts are the fountain of information and their purity is in direct proportion to the accuracy of the details from which they are compiled. We have been too prone in our accounting and costing to accept without question basic facts of production as they have been generated in the shop. We have not given sufficient thought to actual costs, to profit and loss statements, and to balance sheets. To summarize, misinformation is a great sin which may lead to poor decisions on the part of management.

Speed

Too many feel and follow the practice of making interim financial reports as exacting as an audit report. This slows up the process of furnishing to management figures which it can use in the daily conduct of making decisions. Have we forgotten that most interim figures at best are only approximations, unless a physical

inventory in elaborate detail is taken at the end of each interim period? Have we forgotten that much of the information used in any weekly or monthly presentation of costs is partly an estimate and is partly based on distribution and redistribution which is a matter of opinion? Have we forgotten that one of the three requisites of good management is obtaining knowledge quickly? Sometimes, it seems that we have. Consequently, I feel that to help management in the future, one of the major objectives should be that of getting out at least a good portion of the information management needs much faster than it is now presented.

Trends

Accounting is an exacting science and yet the application of accounting in its practical aspects requires flexibility. Management needs more figures which show variations and trends from prior periods. The fact that an item may have cost $234 is not nearly so important to the average manager today as how much and why it cost more or less than it did six months ago, a year ago, last week, or at some other previous date. We should consider everything we do in terms of first, whether it will correctly display operations as being "better," as "good," or "worse" than in the past; and second, what does the variation from the past portend for the future. From trends management can determine many methods of procedure with less effort and greater confidence.

Costing Product Lines

The problem of distributing costs among lines of product has become more involved as business has become more involved. The importance of the problem has not lessened. The average accountant must spend considerably more time in the future than he has in the past in determining the logic for the distribution of costs which cannot be allocated directly to a particular product. It is our responsibility to see that distribution is honest and not the result of expediency which says that one line can "afford" to carry more or less than another. It is the responsibility of the accountant to make the distribution so practical that even those department heads who question charges allocated to their department will be unable to point out why and where they have been overcharged.

Standards

Many accountants feel that actual costing is the only way of conducting their cost systems. They go along on the general phil-

osophy that "the more charged directly, the greater the control." This is not true as a rule. Thus, seeing through this fallacy, many accountants have gone to standard costs. True or usable costs are those costs which provide a comparison of what is expected to happen and what actually happens.

Break-Even Points

The concept of the break-even point is becoming better understood both to management and accountants. Too many people, however, believe that a break-even point may be estimated simply because we lose money at one level and make money at another level of activity, the break-even point lying somewhere between. In order to understand the full significance of this concept, we must know what factors affect the break-even point under varied conditions. The accountant must educate management so that in the break-even analysis by lines of product, it has at its command the tools for pruning, culling, and correcting poor and unprofitable lines as well as the tools for improving those lines which show possibilities in the future.

There is another fundamental of importance in using break-even point technique which will increase in significance as we return to normal operations. Fred V. Gardner, in his analysis of the reports of 892 manufacturing companies reporting to the Securities and Exchange Commission, points out that current break-even points are 60 to 100 per cent higher than in the 1936-39 base years.

Exceptions

All of the new things which have come into our economic life have tended to complicate the accountant's work—social security, unemployment compensation, taxes of all types, reports to SEC and OPA, and many other new obligations. These have not only created new clerical effort, but have complicated the old. The problems of management have become more involved with each passing hour; therefore, management must deal more and more with exceptions. Accountants must find ways and means to deliver to the manager a small package of summarized, condensed, and digested basic information needed to run the business. No longer can he place before management hundreds of costs to analyze. He must summarize them. He must know and show the trends, the basic, pertinent facts which seem to be of the most importance. He must cull out the minor facts and figures, and get to a harassed man-

agement only basic and proven facts so that time is not wasted in the analysis of details.

Annual Reports

In the past several years, annual reports have become much more readable in many companies. Reviewing the statements of a good many of the companies which publish annual reports proves that each year they attempt to place in such reports more of the simple, factual information readily assimilated by the mass of people. You will also find that attempts have been made to simplify the statistical presentation of the accounting statements included therein. We have only begun to scratch the surface of the possibilities here. In this connection, I would like to quote from a speech delivered on February 4, 1946 by Weston Smith, in which he said "Annual statements must sail the seven 'cees'—correct, complete, concise, candid, courageous, characteristic, and colorful." Accountants can do much toward improving annual reports by keeping in mind these seven points.

Cost of Keeping Costs

How often we spend a dollar to record a dollar's worth of information may never be known, but it is probably too often. There is a responsibility here similar to that of the engineer in creating good, inexpensive design or that of the shop man in good layout. It is our obligation to management to review every dollar's worth of "statistical keeping" of costs, whether involved in formal bookkeeping or in "sideshow" reports, analyze it first for facts, second, for speed, and relate these findings to the cost of production. In doing so you will find that many figures are obsolete and no longer used. Some do not mean what they say; but most will be found to need just a good going over to revitalize their meaning. If we would gather in one place all the figure reports prepared in an organization, most of us would be floored.

Conclusion

The accountant's obligation is to anticipate and meet the needs of future management. This obligation will necessitate greater accomplishments by the accountant in the development and improvement of accounting methods and techniques, and a greater knowledge and understanding of the significance of the internal and external economic facts of the business of his company and of the industry of which it is a part.